GW25-e4436

Relationship between hyporesponsiveness to clopidogrel and in stent restenosis in patients undergoing percutaneous coronary intervention

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Objectives: The relationship between hyporesponsiveness to clopidogrel and in stent restenosis (ISR) was analyzed, and the cut-off value of hyporesponsiveness to clopidogrel for ISR was evaluated.
Methods: 861 consecutive patients enrolled and patients' inhibition rates in arachidonic acid (AA) and adenosine 5′-diphosphate (ADP) pathways were measured by thrombelastography (TEG) system. Patients were divided into ISR and non-ISR groups according to the results of coronary angiography. Correlation between hyporesponsiveness to clopidogrel and ISR was analyzed.
Results: 249 patients were in ISR group and 612 patients were in non-ISR group. The average interval from the first PCI to the second CAG was 13 (IQR9-16) months. The frequency of clopidogrel hyporesponsiveness in ISR group was significantly higher than that in non-ISR group ($P<0.01$). Inhibition rates in AA and ADP pathways in ISR group were lower than those in non-ISR group ($P<0.01$). The inhibition rate in ADP pathway was inversely correlated with ($r=-0.225$, $P=0.001$) the severity of ISR. After being adjusted for traditional covariates, the inhibition rate in ADP pathway ($\beta=-0.191$, $R^2=0.011$, $P=0.013$) remained independently associated with the severity of ISR, clopidogrel hyporesponsiveness was an independent risk factor of ISR (HR 6.62, 95% CI 2.84-15.49, $P=0.001$). ROC curve analysis showed that the predictive cut-off value of the inhibition rate in ADP pathway for ISR was 10.1%.
Conclusions: The inhibition rate in ADP pathway is inversely related to the ISR severity. Clopidogrel hyporesponsiveness is an independent risk factor for ISR and can predict the risk of ISR.

GW25-e4571

The effects of a loading-dose of atorvastatin before primary percutaneous coronary intervention on coronary flow and serum sCD40L in patients with ST-segment elevation myocardial infarction

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Objectives: The purpose of this paper was to evaluate the effect of a loading-dose treatment of atorvastatin before primary percutaneous coronary intervention on coronary flow and serum sCD40L in patients with ST-segment elevation myocardial infarction.
Methods: From May, 2012 to October, 2013 STEMI patients who prepared to perform primary PCI were screened. They were randomly divided into three groups: group A (received atorvastatin 80 mg loading dose before PCI then followed by 40mg daily for one month and a maintenance dose of 20mg daily thereafter) ;group B (received atorvastatin 40mg daily after PCI for one month and a maintenance dose of 20mg daily thereafter) ;group C (received atorvastatin 20mg daily after PCI). The serum levels of sCD40L were recorded at 24h, 7d, 30d after PCI. The immediate post operation TIMI flow grade and corrected TIMI Frame count were recorded. Drug safety included elevated liver enzymes (more than 3 times the uper limit of normal value), myalgia, rhabdomyolysis, gastrointestinal reaction and rash.
Results: A total of 198 STEMI patients were screened during our study. Ultimately 136 patients were randomly assigned to group A ($N=48$), group B, ($N=43$), and group C ($N=45$). (1) The baseline data, angiography results, PCI procedure and medication among the 3 groups were not statistically different and were comparable.
(2) Comparison of serum sCD40L level among the three groups: No significant difference was found among the 3 groups on the serum sCD40L levels ($P>0.05$). 24 hours after PCI, the level of serum sCD40L ($x\pm s$, ng/ml) three groups were 16.18 ± 4.52, 18.25 ± 5.02, 18.66 ± 4.17 respectively, $P=0.022$. Serum sCD40L level of A group was lower than those in B and C group ($P<0.05$).There was no statistical significance difference between B and C group ($P>0.05$). 7 days after PCI, the level of serum sCD40L ($x\pm s$, ng/ml) three group were 3.92 ± 1.44, 4.63 ± 1.68, 4.68 ± 1.51 respectively, $P=0.035$. Serum sCD40L level of A group was lower than those in B and C group ($P<0.05$). There was no statistical significance difference between B and C group ($P>0.05$). 30 days after PCI, no statistically significant difference among the three groups on the serum sCD40L levels were found ($P>0.05$). (3) Immediate coronary flow after primary comparison among the three groups: There was no statistical difference among the three groups on the ratio of reached TIMI flow grade 3 ($P>0.05$). The immediate postoperative cTFC (Corrected TIMI frame count) in three groups ($x\pm s$) were 25.44 ± 12.07, 30.98 ± 12.09, 33.49 ± 14.56, respectively. The differences among three groups reached statistical significance. The differences between group A and group B, group A and group C both reached statistical significance ($P<0.05$).No significant difference between group B and group C was found ($P>0.05$). The cTFC of A group was lower than that of B and C group. (4) Drug safety monitoring: there were no significant difference among three groups on the occurrence of drug adverse reactions, the changes of liver enzyme and creatine kinasewas during the study.
Conclusions: For STEMI patients who undergoing primary PCI, a loading-dose of atorvastatin before PCI could reduce serum sCD40L level, improve coronary flow and did not increase the incidences of adverse events.

GW25-e4584

The safety and efficacy of dual-axis rotational coronary angiography in the diagnosis of coronary artery disease

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Objectives: This study evaluates the efficacy and safety of Dual-axis rotational coronary angiography (DARCA) (X-per Swing) in the diagnosis of coronary artery disease.
Methods: From March to July in 2010, consecutive 79 patients undergoing diagnostic coronary angiography were randomized to either standard angiography group (n=39) or X-per Swing angiography group (n=40). We measured the quantity of contrast utilized and radiation exposure.
Results: Both groups were successfully completed angiography. There was a 44% reduction in contrast utilization in the X-per Swing group compared to the standard group (29.28 ± 5.06 ml vs. 52.02 ± 12.05 ml, $P<0.001$). Additionally, there was a 50% reduction in radiation exposure in the X-per Swing group compared to the standard group (6900 ± 3443.03 $mGycm^2$ vs. 16857 ± 8584.68 $mGycm^2$, $P<0.001$). Neither arrhythmia nor chest pain differed in both groups. X-per Swing can provides a significant reduction of contrast and radiation exposure while maintaining comparable diagnostic accuracy and safety. With an auto-inject system (ACIST CMS2000) that can autoinject contrast by interlinkage, operator can stay far away from X-ray tube, which enable the X-ray exposure to be extremely reduced.
Conclusions: X-per Swing represents a new angiographic technique which is equivalent in terms of image quality and is associated with less contrast use, radiation exposure and procedural time than SA.

GW25-e5158

Serum Cystatin C Level Not Associated with Coronary Artery Plaque Vulnerability Analyzed by Optical Coherence Tomography

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Objectives: Cystatin C, which is an endogenous marker for renal function, is reported to be a novel marker for coronary atherosclerosis. Some studies showed that lower cystatin C levels may be associated with increased severity of CAD in clinically stable patients, whereas higher levels may indicate the presence of any vulnerable plaque. To evaluate the relationship of Serum Cystatin C level and the coronary artery plaque vulnerability assessed by OCT in patients with coronary artery disease.
Methods: Eighty-two patients with chest pain underwent OCT assessment after coronary angiogram, all the lesions with diameter stenosis $\geq30\%$ and $<100\%$ were analyzed. The serum Cystatin C levels were measured, and the variables of plaque vulnerability, rupture, fibrotic cap thickness, micro channel in plaque were analyzed by OCT.
Results: One hundred and thirty seven lesions were analyzed, the Cystatin C levels didn't exist significant difference between the patients with vulnerable plaques and stable plaques ($P=0.918$), no difference between the ruptured plaques or no ruptured plaques ($P=0.990$), between plaques with micro channel or not ($P=0.570$); There were no relationship between the Cystatin C level and fibrous cap thickness ($r=-0.233$).
Conclusions: In our study, we haven't found the relationship of Cystatin C level and plaque vulnerability assessed by OCT.

GW25-e0291

Staged PCI combined with optimized medical therapy for mutivessel disease in acute myocardial infarction

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Objectives: In acute myocardial infarction (AMI) and multivessel disease, it was unknown whether short-term percutaneous coronary intervention (PCI) for non-infarction related artery (IRA) was better than ischemia related PCI accompanied with optimized medical therapy.
Methods: This was a retrospective study. From 2009 to 2011, 288 patients with AMI and mutivessel disease were enrolled who were undergoing primary PCI and assigned

to group A (staged PCI for non-IRA within 7-10 days after AMI) and group B (no staged PCI group) according to whether do staged PCI for non-IRA. In group B, subsequent PCI for non-IRA was recommended only for ischemia evidence. Optimized medical therapy was administrated for all of patients according to clinal guideline and a doctor term of cardiology was respond for follow-up and provide directions of professionals at regular intervals. The primary outcome was recurrence of myocardial infarction and death from cardiac causes in 24 months follow-up visit. The secondary outcomes were revascularization, heart failure, angina and rehospitalization from cardiac causes.
Results: After 24 months follow-up visit, 288 patients finished the experiment in group A (145 patients) and group B (143 patients). The primary outcome occurred in 12 patients in group A and in 15 patients in group B (P=0.519). There was no patient dead in the PCI operation for non-IRA in two groups. But the secondary outcomes were obviously higher in group B than those in group A, inclusive revascularization, refractory angina and rehospitalization.
Conclusions: In patients with AMI and multivessel coronary artery disease undergoing primary PCI, staged PCI within 7-10 days for non-IRA are safe and decrease the risk of revascularization, angina and rehospitalization. But staged PCI didn't reduce the risk of death from cardiac causes, myocardial infarction and heart failure.

GW25-e0400

Comparison of Left and Right Radial Approach for Primary Percutaneous Coronary Intervention in Acute ST-Segment Elevation Myocardial Infarction Patients

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Objectives: Although reperfusion time is related to clinical outcomes of patients with acute STEMI, there has been a lack of data regarding the effect of different transradial approach on reperfusion time. Therefore, we aimed to investigate the effect of transradial approach (left vs right) on reperfusion time for primary percutaneous coronary intervention (PCI) in acute ST-elevation myocardial infarction (STEMI) patients.
Methods: A total of 100 consecutive patients with STEMI were randomized to left radial approach (n=50) or right radial approach (n=50) for primary PCI. The primary end point was reperfusion time defined as the time from local anesthesia infiltration to the first balloon inflation or the beginning of thrombus aspiration in case of thrombectomy. The secondary end points included radiation exposure by measuring cumulative air kerma (CAK) and CAK dose area product (CAK DAP), fluoroscopy time, contrast use and major adverse cardiac events at 30 days.
Results: Procedural success was achieved in 49 of 50 (98%) in each radial approach. Compared with right radial approach, left radial approach had significantly shorter reperfusion time (18.1±5.6 vs 16.0±4.3 minutes, P=0.037). There were no significant differences in CAK, CAK DAP, fluoroscopy time and contrast use between the two approaches. At 30 days, no patients experienced reinfarction or stroke, and no patients required repeat PCI or bypass surgery.
Conclusions: Left radial approach is associated with a shorter time to reperfusion compared with right radial approach, and may become a feasible and attractive alternative to perform primary PCI for STEMI patients.

GW25-e0541

Analysis on the Risk Factors for Occurrence of Electrical Storm in Percutaneous Coronary Intervention

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Objectives: To investigate the risk factors for occurrence of electrical storm in the patients with acute ST segment elevation myocardial infarction (STEMI) when treat them by percutaneous coronary intervention (PCI) and provide evidence for prospective nursing.
Methods: Collected the clinical data of 280 patients with STEMI and treated by PCI from January 2008 to December 2011, the patients with no less than twice spontaneous ventricular tachycardia (VT) or ventricular fibrillation (VF) were classified to the electrical storm group and others were classified to control group.
Results: The number of patients with electrical storm is nineteen and the incidence rate is 6.8%. In early group (from January 2008 to December 2009), the number of patients with electrical storm is sixteen. In late group (from January 2010 to December 2011), the number of patients with electrical storm is three. The electrical storm group:The value of creatine kinase isoenzyme MB (CK-MB), the value of troponin I (TNI), right coronary artery being the infarction related artery (IRA), TIMI level, bradycardia and sustained hypotension in the electrical group are significantly higher than those of control group (P<0.05).
Conclusions: The value of creatine kinase isoenzyme MB (CK-MB), the value of troponin I (TNI), right coronary artery being the infarction related artery (IRA), TIMI level, bradycardia and sustained hypotension are the risk factors for occurrence of electrical storm .Early treatment to the risk factors can reduce the incidence of VAS, and improve the prognosis.

GW25-e0788

The effect of thrombus-aspiration combined tirofiban in the patients with ST-segment elevation myocardial infraction (STEMI) after the direct percutaneous coronary intervention

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Objectives: This study aimed to investigate the effact of thrombus-aspration and tirofiban in the patients with ST-segment elevation myocarction infraction (STEMI) during the primary percutaneous coronary intervention (PCI).
Methods: Atotal of 98 consecutive acute STEMI patients received primary PCI in the Frist people Hospilal of JingMen enrolled in this study from January 2013 through March 2014.The Patients were arranged 2 groups, including only thrombus-aspriation group (thrombus-aspriation group ,n=48) and thrombus-aspriation Combined with tirofiban group (Combined group ,n=50).We compared the different Target among the two groups, including The baseline profiles, immediate post-operative CAG (coronary angiography) and follow-up data.
Results: (1) No significant baseline differences existed among 2 groups (all P >0.05).(2).Compared with the thrombus-aspriation group, the post-operative Thrombolysis In Myocardial Infraction (TIMI) grade, rate of TIMI 3 ,post-operative 90 mins 50% ST-segment elevation resolution (STR) were significant lower than Combined group (P <0.05),the rate of no-reflow was significant higher than Combined group (P <0.05). There were no significant differences in the rate of hemorrhoea and mortality in hospital among 2 groups (P >0.05).(3) After followed-up 6 months , there were no statistically difference in mortality, rehospitalization for angina and MACE, but the Left ventricular ejection fraction (LVEF) of Combined group were more higher than thrombus-aspriation group (P <0.05).
Conclusions: The combine of thrombus-aspration and tirofiban were usefull for reduce thrombus burden, prevented the rate of no-reflow and improved myocardial microvascular reperfusion and Cardiac Function in patiens with STEMI after the direct PCI.

GW25-e0851

Relation of elevated C-reactive protein and interleukin-6 levels to recurrence of atrial fibrillation after catheter ablation of paroxysmal atrial fibrillation

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Objectives: It is prevalent of recurrence of atrial fibrillation after catheter ablation of paroxysmal atrial fibrillation. The objectives of this study was to investigate the relation of elevated C-reactive protein and interleukin-6 levels to recurrence of atrial fibrillation after catheter ablation of paroxysmal atrial fibrillation.
Methods: To analyze retrospectively the clinical data of 94 patients with paroxysmal atrial fibrillation who underwent radiofrequency catheter ablation by circumferential pulmonary vein isolation (CPVI). Patients were allocated to success group (72) and recurrence group (22 cases) according to the symptoms, 12-Leads ECG and Holter ECG after 6 months follow-up. The levels of cardiac troponin T (cTnT), lactate dehydrogenase (LDH), and creatine kinase myocardial bound (CKMB) were determined at different time point. Enzym-linked immunosorbent assay and immune turbidimetric method were used to determine the concentration of interleukin-6 (IL-6) and high specific C-reaetive Protein (hsCRP). Cardiac structure and function were measured with 2-D echocardiogram.
Results: There was no significant difference of atrioventricular structure and function parameters, hsCRP, IL-6 and serum cardiac biomarkers in patients between success group and recurrence group before ablation. The levels of hsCRP and IL-6 were significantly lower in success group than recurrence group. However, there was no significant difference of atrioventricular structure and function parameters and serum cardiac biomarkers between success group and recurrence group before ablation.
Conclusions: High levels of hsCRP and IL-6 after long periods ablation have some predictive value in evaluating early recurrence of atrial fibrillation after Radiofrequency catheter ablation.

GW25-e0874

Pharmacokinetics and Pharmacodynamics of Bivalirudin (Angiomax®) in Chinese Patients Undergoing PCI

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Objectives: The primary objective was to determine the pharmacokinetics (PK) and pharmacodynamics (PD) of bivalirudin (Angiomax) after intravenous administration in Chinese patients undergoing PCI. Since bivalirudin exhibits linear dose-dependent PK and anticoagulant activity and is not subject to hepatic metabolism, PK in Chinese patients is expected to be similar to that in non-Chinese, but no data were available to date.
Methods: 20 patients undergoing a PCI at Fudan University, ZhongShan Hospital in Shanghai were randomly enrolled in this study. Bivalirudin was administered as a 0.75 mg/kg IV bolus followed by a 1.75 mg/kg/h infusion for the duration of the PCI procedure. The mean±SD duration of infusion was 45±27.7 min and mean total dose